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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,801	07/31/2003	Makoto Onodera	62758-048	9775

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EXAMINER	
OCHOA, JUAN CARLOS	
ART UNIT	PAPER NUMBER
2123	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/630,801	ONODERA ET AL.	
	Examiner	Art Unit	
	Juan C. Ochoa	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/11/06*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed 12/11/06 has been received and considered. Claims 1–9 are presented for examination.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

4. Specifically, claim 1 recites software limitations and therefore the claims are directed to software per se, which are considered non-statutory subject matter.

5. Specifically, claim 1 does not produce a useful, concrete and tangible result. The limitation "a simplifying means for producing the configuration model for use in analyzing" reflects intended use and it does not actually produce an analytical configuration model.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 2, 4, 6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Mobley et al. (Mobley hereinafter), An Object Oriented Approach to Geometry Defeaturing for Finite Element Meshing.

8. As to claim 1, Mobley discloses a configuration model producing apparatus, for producing an analytical configuration model from a configuration model modeling an outer configuration of a target of analyzing (see "producing an analytical configuration" as "defeaturing" in page 551, 3.1 section), comprising: a simplification candidate portion automatic extracting (see "automatic extracting" as "automatic geometry defeaturing" in page 547, Abstract paragraph, lines 4–5) means for taking out a difference from an original configuration model by expanding or reducing the configuration model partially, thereby deciding to be a candidate to be removed if the difference is less than a predetermined reference (see "taking out a difference" as "eliminate features" and "reference" as "tolerance" in page 551, 3.2 section, lines 1–12); and a simplifying means for producing the configuration model for use in analyzing (see "simplifying" as "defeaturing" in page 551, 3.2 section, lines 17–18), by removing the candidate decided to be removed from (see "removing" as "elimination" in page 551, 3.2 section, lines 13–14).

9. As to claim 2, Mobley discloses a configuration model producing apparatus, for producing an analytical configuration model, being simplified on partial configurations unnecessary for analyzing, upon basis of the configuration model (see "producing an analytical configuration" as "defeaturing" and "simplified on partial configurations unnecessary for analyzing" as "suppress features" in page 551, 3.1 section),

comprising: a configuration model data inputting means for inputting the configuration model (see page 549, last two paragraphs and page 550, 1st two paragraphs); a reference parameter designating means for inputting reference parameter for comparing partial configurations and sizes to partial configurations of the configuration model (see "to quantify smallness a tolerance" in page 551, 3.2 section, lines 1–2); a simplification candidate portion automatic extracting (see "automatic extracting" as "automatic geometry defeaturing" in page 547, Abstract paragraph, lines 4–5) means for automatically searching the partial configuration falling within a region of the reference parameter (see "searching the partial configuration falling within a region of the reference parameter" as "suppress features" in page 551, 3.1 section), and for extracting the partial configuration coincident with the searching to be a simplification candidate partial configuration (see "extracting the partial configuration coincident with the searching" as "eliminate features" in page 551, 3.2 section, lines 1–12); a simplification portion selecting means for selecting the partial configuration to be simplified from the simplification candidate partial configuration (see "simplifying" as "defeaturing" in page 551, 3.2 section, lines 17–18); and a simplifying means for producing the analytical configuration model removing the selected partial configuration therefrom (see "removing" as "elimination" in page 551, 3.2 section, lines 13–14).

10. As to claim 4, Mobley discloses a configuration model producing apparatus further comprising a simplification candidate portion emphatic displaying means for displaying the simplification candidate partial configuration, which is extracted by said simplification candidate automatic extracting means, with emphasizing thereon (see Fig.

11 in page 560 and Fig. 13 in page 561). Examiner notes that both Fig. 11 and Fig. 13 show "emphatic displaying" as "highlighting" in the original pdf file, even though highlighting is not noticeable in the printout of the original pdf file.

11. As to claim 6, Mobley discloses a configuration model producing apparatus, for producing an analytical configuration model, being simplified on partial configurations unnecessary for analyzing, upon basis of the configuration model (see "producing an analytical configuration" as "defeaturing" and "simplified on partial configurations unnecessary for analyzing" as "suppress features" in page 551, 3.1 section), comprising: a configuration model data inputting means for inputting the configuration model (see page 549, last two paragraphs and page 550, 1st two paragraphs); a reference parameter designating means for inputting reference parameter for comparing partial configurations and sizes to partial configurations of the configuration model (see "to quantify smallness a tolerance" in page 551, 3.2 section, lines 1–2); a simplification database registering means for registering data of the partial configuration to be simplified into a simplification database (see "database" as "topology data structure" in page 549, last paragraph), together with a simplification name thereof (see "a simplification name" as "topoid" in page 550, 2.2 section, lines 1–2); a simplification parameter selecting means for outputting data of the partial configuration, which is read therein from the simplification database with designating a target to be simplified, as a reference parameter (see "to quantify smallness a tolerance" in page 551, 3.2 section, lines 1–2); a simplification candidate portion automatic extracting (see "automatic extracting" as "automatic geometry defeaturing" in page 547, Abstract paragraph, lines

4–5) means for automatically searching the partial configuration falling within a region of the reference parameter (see "searching the partial configuration falling within a region of the reference parameter" as "suppress features" in page 551, 3.1 section), and for taking out a difference from the original configuration model by expanding or reducing the configuration model partially, thereby deciding to be a candidate to be removed if the difference is less than a predetermined reference (see "taking out a difference" as "eliminate features" and "predetermined reference" as "tolerance" in page 551, 3.2 section, lines 1–12) and extracting the partial configuration coincident with the searching to be a simplification candidate partial configuration (see "extracting the partial configuration coincident with the searching" as "eliminate features" in page 551, 3.2 section, lines 1–12); a simplification portion selecting means for selecting the partial configuration to be simplified from the simplification candidate partial configuration (see "simplifying" as "defeaturing" in page 551, 3.2 section, lines 17–18); and a simplifying means for producing the analytical configuration model removing the selected partial configuration therefrom (see "removing" as "elimination" in page 551, 3.2 section, lines 13–14).

12. As to claim 8, Mobley discloses a configuration model producing apparatus further comprising a simplification candidate portion emphatic displaying means for displaying the simplification candidate partial configuration, which is extracted by said simplification candidate automatic extracting means, with emphasizing thereon (see Fig. 11 in page 560 and Fig. 13 in page 561). Examiner notes that both Fig. 11 and Fig. 13

show "emphatic displaying" as "highlighting" in the original pdf file, even though highlighting is not noticeable in the printout of the original pdf file.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claims 3, 5, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mobley as applied to claims 2 and 6 above, taken in view of Inoue et al., (Inoue hereinafter), Face Clustering of a Large-scale CAD Model for Surface Mesh Generation.

17. As to claim 3, Mobley discloses means for producing a configuration, reducing from the configuration model in an inside direction thereof by the reference parameter, comparing the reduced configuration with the configuration model and searching the partial configuration disappearing and the partial configuration reversed, thereby registering the partial configuration, being coincident with the searching condition, to be the simplification candidate partial configuration (see "reducing" as "removal" and "partial configuration disappearing" as "face topologies can disappear from the CAD model entirely" in page 552, 3.3 section, lines 1–5).

18. While Mobley discloses almost all of the instant invention as applied to claim 3 above, Mobley fails to disclose a simplification candidate portion automatic extracting means which includes means for producing a configuration, expanding from the configuration model in an outside direction thereof by the reference parameter, comparing the expanded configuration with the configuration model and searching the partial configuration disappearing and the partial configuration reversed, thereby registering the partial configuration, being coincident with the searching condition, to be a simplification candidate partial configuration.

19. Inoue discloses a configuration model producing apparatus wherein said simplification candidate portion automatic extracting means, includes means for

producing a configuration, expanding from the configuration model in an outside direction thereof by the reference parameter, comparing the expanded configuration with the configuration model and searching the partial configuration disappearing and the partial configuration reversed, thereby registering the partial configuration, being coincident with the searching condition, to be a simplification candidate partial configuration (see "The area index helps each region to grow larger than the prescribed threshold area size" in page 254, col. 2, "4.2.1. Area size" section, lines 2–4).

20. Mobley and Inoue are analogous art because they are both related to decomposition of CAD models.

21. Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to utilize the decomposition of CAD models of Inoue in the system of Mobley because Inoue presents a method for clustering a large number of faces for surface mesh generation by decomposing large CAD models into well-sized and well-shaped regions to improve quality of the generated mesh (see page 258, col. 2, last paragraph, lines 1–6), and as a result, Inoue reports that by configuring the combination of geometric indices and tuning parameters, his method is customizable to various applications that have different requirements on the shape and size of a region (see page 260, col. 1, lines 1-5).

22. As to claim 5, Mobley discloses a configuration model producing apparatus further comprising a simplification candidate portion emphatic displaying means for displaying the simplification candidate partial configuration, which is extracted by said simplification candidate automatic extracting means, with emphasizing thereon (see Fig.

11 in page 560 and Fig. 13 in page 561). Examiner notes that both Fig. 11 and Fig. 13 show "emphatic displaying" as "highlighting" in the original pdf file, even though highlighting is not noticeable in the printout of the original pdf file.

23. As to claim 7, Mobley discloses means for producing a configuration, reducing from the configuration model in an inside direction thereof by the reference parameter, comparing the reduced configuration with the configuration model and searching the partial configuration disappearing and the partial configuration reversed, thereby registering the partial configuration, being coincident with the searching condition, to be the simplification candidate partial configuration (see "reducing" as "removal" and "partial configuration disappearing" as "face topologies can disappear from the CAD model entirely" in page 552, 3.3 section, lines 1–5). While Mobley discloses almost all of the instant invention as applied to claim 3 above, Mobley fails to disclose a simplification candidate portion automatic extracting means which includes means for producing a configuration, expanding from the configuration model in an outside direction thereof by the reference parameter, comparing the expanded configuration with the configuration model and searching the partial configuration disappearing and the partial configuration reversed, thereby registering the partial configuration, being coincident with the searching condition, to be a simplification candidate partial configuration. Inoue discloses a configuration model producing apparatus wherein said simplification candidate portion automatic extracting means, includes means for producing a configuration, expanding from the configuration model in an outside direction thereof by the reference parameter, comparing the expanded configuration with the configuration

model and searching the partial configuration disappearing and the partial configuration reversed, thereby registering the partial configuration, being coincident with the searching condition, to be a simplification candidate partial configuration (see "The area index helps each region to grow larger than the prescribed threshold area size" in page 254, col. 2, "4.2.1. Area size" section, lines 2–4).

24. As to claim 9, Mobley discloses a configuration model producing apparatus further comprising a simplification candidate portion emphatic displaying means for displaying the simplification candidate partial configuration, which is extracted by said simplification candidate automatic extracting means, with emphasizing thereon (see Fig. 11 in page 560 and Fig. 13 in page 561). Examiner notes that both Fig. 11 and Fig. 13 show "emphatic displaying" as "highlighting" in the original pdf file, even though highlighting is not noticeable in the printout of the original pdf file.

Response to Arguments

25. Applicant's arguments filed 12/11/06 have been fully considered but they are not persuasive.

26. Regarding the rejections under 112, Applicant's arguments have been considered and the rejections are withdrawn.

27. Regarding the rejections under 101, Applicant's arguments have been considered but they are not persuasive. Claim rejections remain.

28. Regarding the rejection under 102. Applicant's arguments have been considered, but they are not persuasive.

29. Applicant argues, (see page 7, last 3 paragraphs), that Mobley and Inoue fail to teach "a simplification candidate portion automatic extracting means for taking out a difference from an original configuration model by expanding or reducing the configuration model partially, thereby deciding to be a candidate to be removed if the difference is less than a predetermined reference". As pointed out in the instant rejection and the previous rejection, Mobley discloses a simplification candidate portion automatic extracting (see "automatic extracting" as "automatic geometry defeaturing" in page 547, Abstract paragraph, lines 4–5) means for taking out a difference from an original configuration model by expanding or reducing the configuration model partially (see "taking out a difference" as "eliminate features" in page 551, 3.2 section, lines 1–12), thereby deciding to be a candidate to be removed if the difference is less than a predetermined reference (see "reference" as "tolerance" in page 551, 3.2 section, lines 1–12). Examiner maintains that the prior art read on the current claim limitations as set forth before in the instant rejection and the previous rejection.

30. As to Applicant arguments, (see pages 8, 1st and 2nd paragraphs), Examiner does not see these features expressed in the claims. Examiner is not allowed to bring limitations set forth in the description into the claims. Applicant arguments are more specific that the claims language and are therefore not persuasive.

31. Therefore it is the Examiners position that the rejection does anticipate the independent claims and the rejections are maintained.

Conclusion

32. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

33. Examiner would like to point out that any reference to specific figures, columns and lines should not be considered limiting in any way, the entire reference is considered to provide disclosure relating to the claimed invention.

34. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan C. Ochoa whose telephone number is (571) 272-2625. The examiner can normally be reached on 7:30AM - 4:00 PM.

35. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

36. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*** 2/8/07

2/9/07

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